AS Computer Science Test: Unit 11 Programming techniques

Name: _____ Group: Mark: /50 Grade:

Answer all questions

1. Read the pseudocode below and complete the trace table with the following data:

   20, 25, 4, 1, 10

```
temperature = 0
highest = 0
lowest = 50
total = 0
for index = 1 to 5
    temperature = input ("Enter temperature: ")
    if temperature > highest then
        highest = temperature
    endif
    if temperature < lowest then
        lowest = temperature
    endif
    total = total + temperature
next index
average = total/5
print ("Highest", highest)
print ("Lowest", lowest)
print ("Average", average)
```

Complete the trace table with the following data 20, 25, 4, 1, 10

temperature	highest	lowest	total	average	index	Output
0	0	50	0		1	

[6]

2. (a) Write pseudocode for a program which outputs the total of all the even numbers within a range entered by the user. [5]

(b) State **two** ways of making programs easy to understand and maintain. [2]

3. Write a subroutine called **answerYorN** to input and check the response to a question. It should be "y" or "n". Any other response is invalid, and the function should ask the user to re-enter until a valid response is received. The value is returned by the function to the main program.

The subroutine is called as follows:

```
response = answerYorN
```

[5]

4 (a) Explain the difference between passing parameters **by value** and **by reference**. [4]

(b) (i) What is meant by modular programming? [2]

(ii) Give **four** advantages of modular programming. [4]

(c) Explain why using local variables makes a large program easier to maintain. [2]

5. (a) When using the debugging facilities of an IDE, explain what is meant by

(i) a watch [2]

(ii) a trace [2]

(b) State **two** other features of an IDE which are useful when entering or editing program code. [2]

6. Describe briefly three(3) advantages of using subroutines in programs [6]

7. Write a pseudocode algorithm using a **for ... next** loop to read five lowercase letters and output the largest and smallest. (a is less than b). [4]

8. Write a pseudocode algorithm that asks a user for a password. They are allowed three attempts to type the correct password, which is "Tues1212".
If they type the correct password, output "Password accepted", otherwise output "Password rejected". [4]

Total 50 marks

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